



# Satellite Services and Telemedicine in Rural Alaska

Tina Pidgeon  
Vice President, Regulatory Affairs

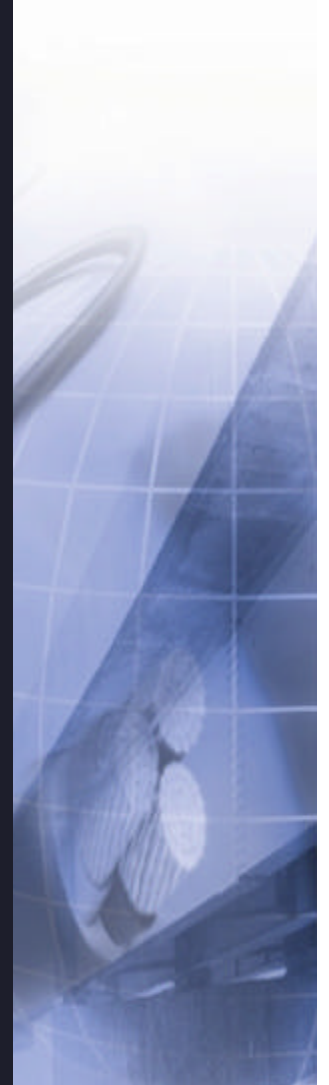
*January 27, 2004*



# • • • • • Majority of villages in extremely rural areas

Population of Alaska is 634,000

Population of Anchorage is 268,983

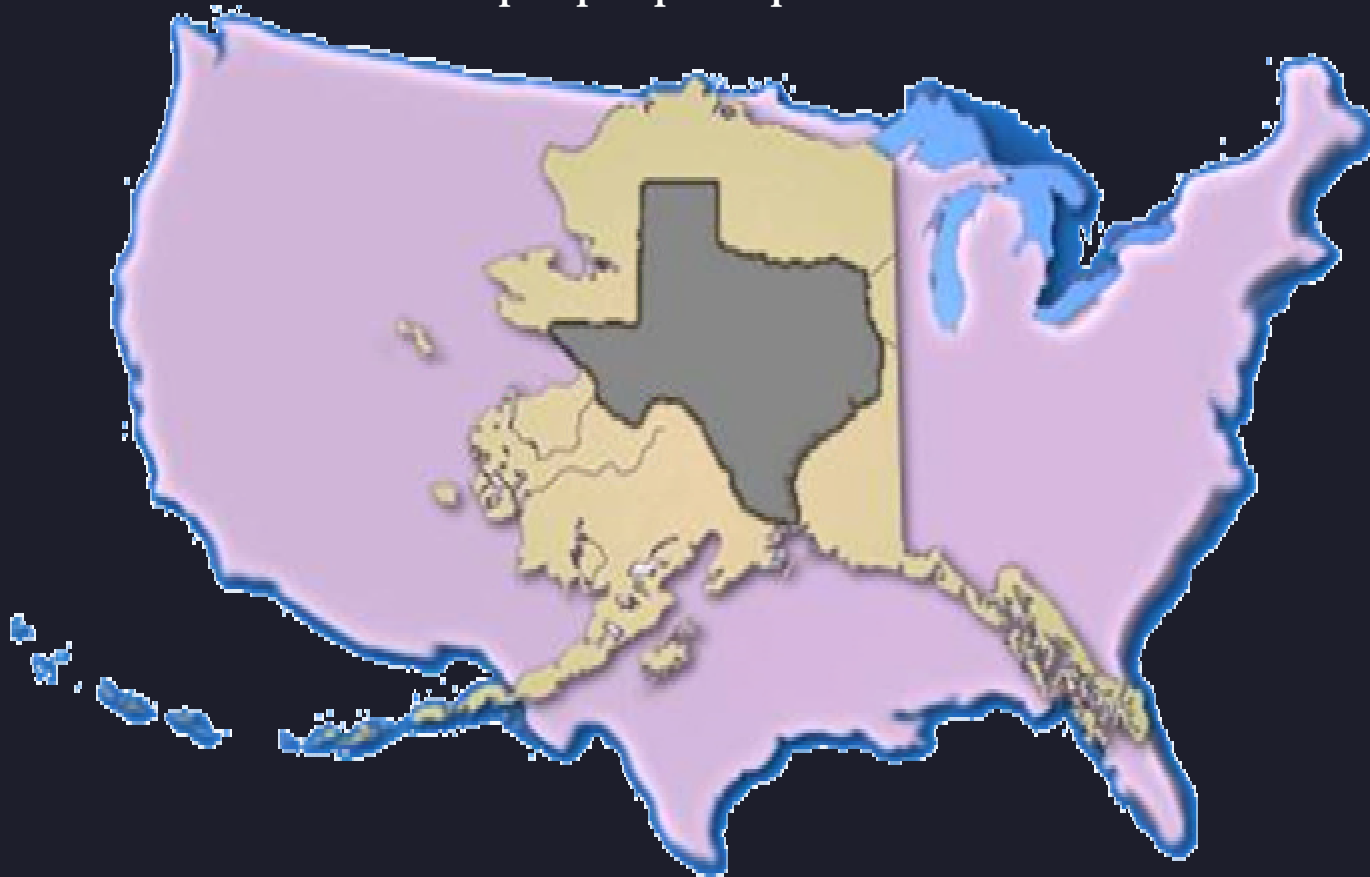


# • • • • • State is vast in comparison to size of population

Total of 571,951 square miles

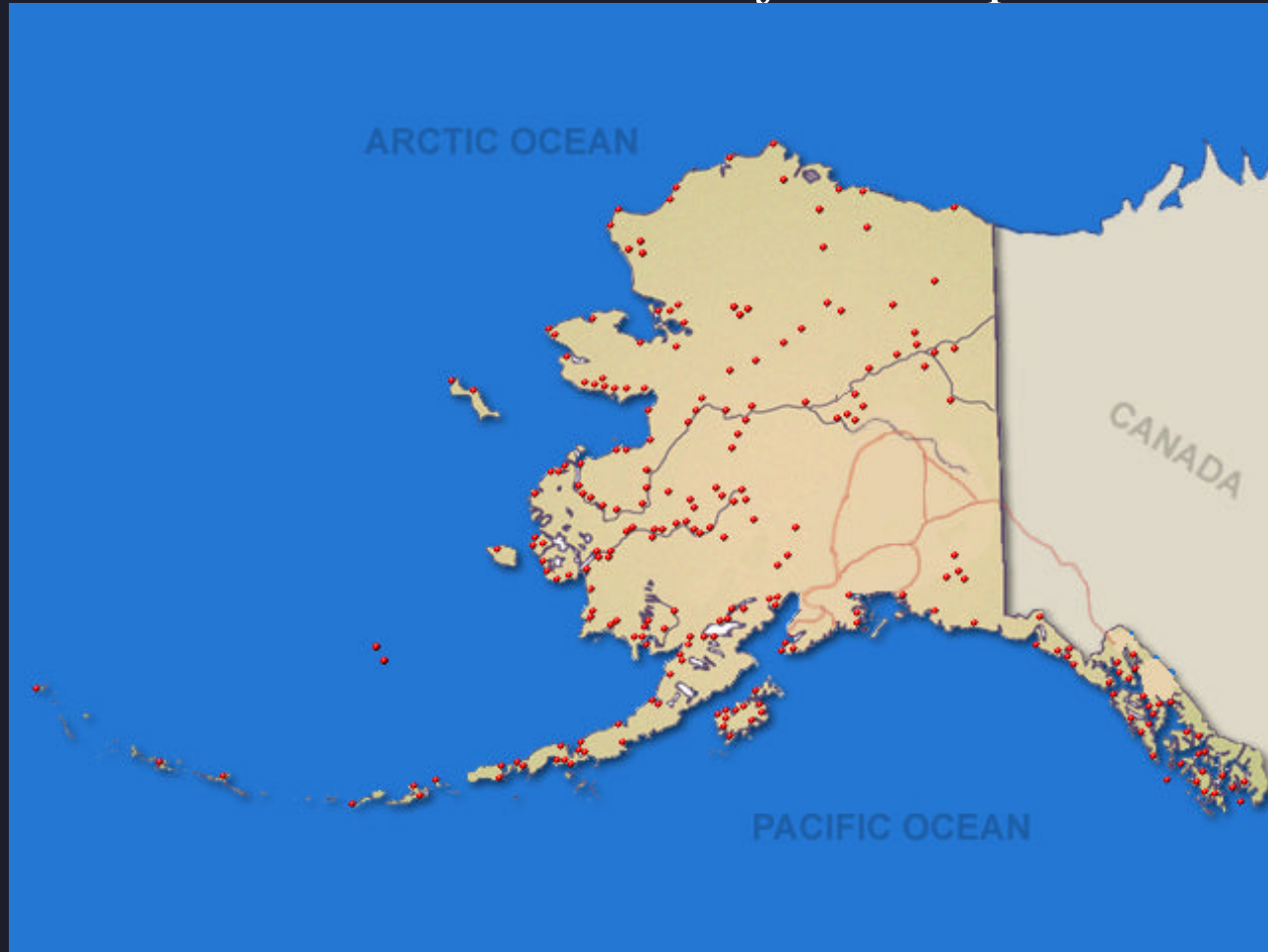
149 incorporated cities

1.1 people per square mile



# Most communities not connected by roads

## Year-Round Road System Map



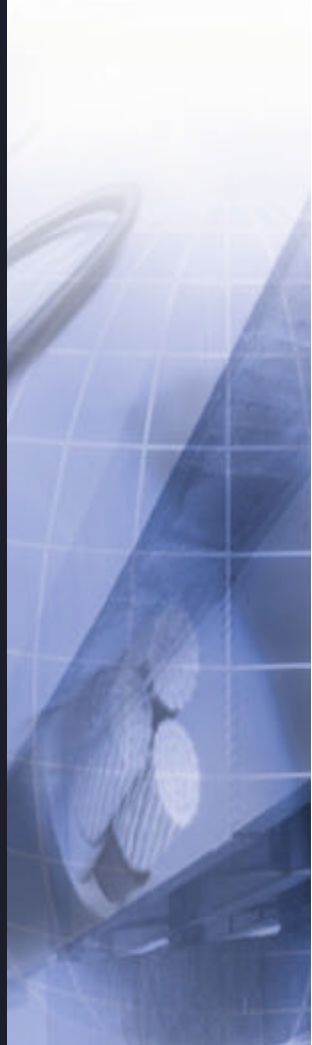
# Telemedicine in Action

## *Surgery in Kotzebue*

- Date: June 9, 2003
- Location: Kotzebue, Alaska
  - 549 miles NW of Anchorage
  - 26 miles above the Arctic Circle
  - Located on a Peninsula near the Kobuk and Noatak Rivers
- Transportation: Primarily Air



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# • • • • • Telemedicine in Action *Surgery in Kotzebue*

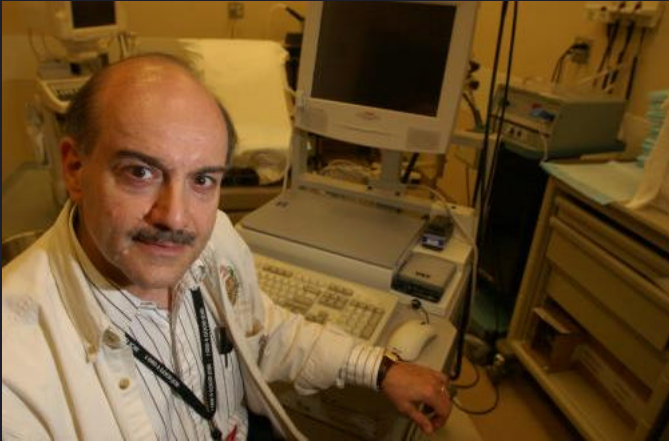
- Situation: Female patient arrives at Maniilaq Health Center complaining of abdominal pain
- Diagnosis:
  - Severe internal bleeding
- Treatment: Immediate surgery
- Problem: No Surgeon available and airport fogged in





# Telemedicine in Action

## *Surgery in Kotzebue*



Dr. Daniel Szekely of the Southcentral Foundation Women's Health Clinic at Alaska Native Medical Center guided a surgery in Kotzebue with the use of a medical video cart like this.

Photo by Bob Hallinen / Anchorage Daily News

- Solution: Telemedicine
  - Videoconferencing for live assist
  - Doctor in Kotzebue guided through surgery by doctor in Anchorage
- Result: Successful surgery



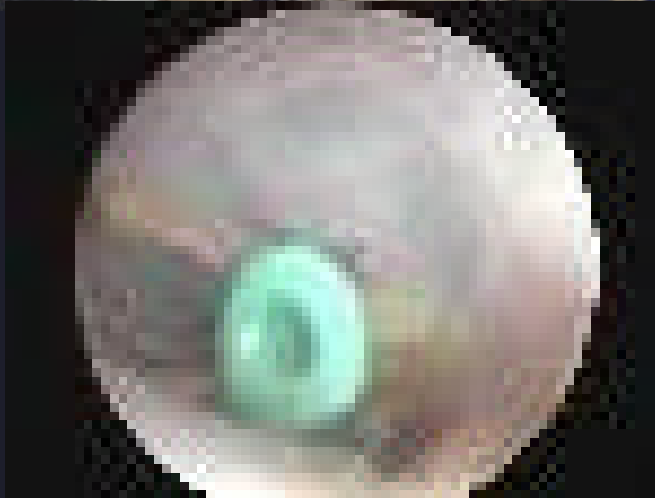


# Telemedicine in Action: Other Current Uses

- Tele-Baby
  - A woman went into labor over 200 hundreds of miles from the nearest doctor
  - Doctors in nearest town guided the village's health practitioner
  - Utilized live, two-way video and voice technologies
- Consultations
  - More than half of doctors' contact with patients is through telemedicine and thousands of "tele-consultations" occur in the region each year
- Teleradiology
  - Films are being read by radiology groups outside rural Alaska
  - Diagnoses are being made within 24 hours of receipt of film



# Overview of Technology in Health Care: Telemedicine



- Key resource for health care delivery in rural Alaska
- Links Community Health Providers with hospital physicians
- “Store and forward” client/server technology uses ~256K bandwidth
- Videoconference capable of 786K
- Over 240 Telemedicine sites
- Use of Telemedicine cart



# AFHCAN Telemedicine Cart

- Medical Equipment
  - Video otoscope
  - Telemetry
  - ECG
  - Digital imagery
  - Electronic medical record
  - Regionally based servers



# Village Health Provider



# High Bandwidth Video Teleconferencing (VTC)

- Enabling additional medical services
  - Trauma
  - Virtual Physician
  - Patient interaction
  - Wound examination
  - Parental education
  - Specialty consults
  - Mental health support
  - Multi-point VTC training sessions





- High Bandwidth VTC combined with store and forward diagnostics





# • • • • • ConnectMD: A Telemedicine Network in Rural Alaska

GCI ConnectMD provides Alaska's medical community with secure, reliable connectivity for exchanging patient information.

Incorporating lessons learned from Telemedicine projects across the country, GCI ConnectMD specifically meets the unique needs of Alaskan health care providers and patients.



# ConnectMD Overview

- A clinically focused, private medical network
  - Built around unique needs of Alaskan patient and clinical settings
  - Models existing patient referral patterns
  - Built to support HIPAA security requirements
  - Installed and running at over 110 sites in Alaska

*Connections are created based on user needs*



# Overview of Technology in K-12 Schools: SchoolAccess

- 225 rural schools have enhanced Internet and distance education services
- **Internet Access**
  - Broadband
  - Email
  - Web hosting
- **Distance Learning**
  - Interactive
  - instructional
  - video
  - Collaborative tools
  - for learning



# Wireless ISP

- GCI provides rural WISP in 87 communities; 150 total by year-end 2004
- Backbone distribution using satellite and digital broadcasting pool
- Local distribution using 2.4 GHz wireless
- Most villages use single “cell”, few use two or three cells
- Local installer/agent in each village



A photograph of a snowy, icy landscape with several large satellite dishes in the background under a clear blue sky. The foreground is filled with textured snow and ice. In the middle ground, a line of satellite dishes is visible, connected by thin wires. The sky is a clear, pale blue.

Thank you.

*Steve Constantine*  
*sconstantine@gci.com*